The effects of shading on morphometric and meristic characteristics of Wild Celery, *Vallisneria americana* Michx., transplants from Lake Okeechobee, Florida

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With 5 figures and 4 tables

Abstract: The effects of shading on morphometric and meristic characteristics of wild celery, *Vallisneria americana*, were investigated in a large outdoor tank (7.7 m³) using water, sediment, and plants from Lake Okeechobee, Florida. Plants were grown in peat sediments from the lake under ambient temperature (27–31 °C) and photoperiod (13L:11D). Treatments were established by differentially shading plants with varying numbers of layers of fiberglass screen; photosynthetic photon flux density ranged from 8 to 155 μmole photons m⁻² s⁻¹, or 1.1 to 21.6 % of average incident photosynthetically active solar radiation (PAR).

Response variables examined included total, above-ground, and below-ground ash-free dry mass (AFDM), epiphytic AFDM, leaf area, number of leaves, mean and maximum leaf widths, and longest, average, and cumulative leaf lengths. Many of these variables indicated statistically significant treatment effects. Only mean and maximum leaf widths, and longest and average leaf lengths had no statistically significant treatment effects. With the exception of cumulative leaf length, which decreased exponentially, all significant response variables decreased linearly with decreasing PAR.

*Vallisneria* in this subtropical lake appears to respond to shading by reducing total, above-ground, and below-ground AFDM, leaf area and number, cumulative leaf length, and its rate of growth. Shading also reduced the AFDM of its epiphytes.

The apparent photosynthetic photon flux density for no net growth, measured approximately a quarter meter above the sediment surface, was found to be 29 μmole photons m⁻² s⁻¹ with 95 % confidence limits of 0 and 51 μmole photons m⁻² s⁻¹. These results suggest that this submersed vascular angiosperm is capable of survival under